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EXAMINER	
GRIER, LAURA A	
ART UNIT	**PAPER NUMBER**
2644	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/195,129	ZHOU ET AL.	
	Examiner	Art Unit	
	Laura A Grier	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3* is/are allowed.

6)☒ Claim(s) *1,2,4,8-10,13-15,19 and 20* is/are rejected.

7)☒ Claim(s) *5-7,11,12 and 16-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The indicated allowability of claims 4-7, 9-20 is withdrawn in view of the newly discovered reference(s) to Maag et al. and Yajima et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 8-12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, step b, lines 4-5, recite "designating a first set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a first type" and step c, lines 6-7, recite "designating a second set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a second type". The further limitation fail to indicate which set of filter coefficients is being used to realize the parametric equalizer. Thus, the claim language is indefinite.

Regarding claim 9, step b, lines 4-5, recite "designating a first set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a first type" and step c, lines 6-7, recite "designating a second set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a second type". The further limitation fail to indicate which set of

filter coefficients is being used to realize the parametric equalizer. Thus, the claim language is indefinite.

Regarding claim 10, step b, lines 4-5, recite "designating a first set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a first type" and step c, lines 6-7, recite "designating a second set of filter coefficients as the selected set of filter coefficients if the USB loudspeaker is of a second type". The further limitation fail to indicate which set of filter coefficients is being used to realize the parametric equalizer. Thus, the claim language is indefinite.

Claims 11 and 12 are dependent upon claim 10.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-2, 4, 8, 10, 13-15 and 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran and Hildebrand, and further in view of Maag et al., U. S. Patent No. 5892833 and Yajima et al., U. S. Patent No. 6519344.

Regarding **claim 1**, Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically

determine a type of a speaker of the computer. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the a set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band with each band including at least two filters, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband equalization (figures 1 and 6) including a plurality of bands (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer, which reads on a parametric equalizer, therein.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

However, Tran and Hildebrand and Maag (herein, Tran combination) fail to disclose each equalizer band comprising at least two filters. In a similar field of endeavor, Yajima et al. (herein, Yajima) disclose an audio system comprising a signal with a compensation filter, wherein the compensation includes a plurality of digital filters, wherein this may be used to implement an equalizer (figure 2 – reference 11)- col. 4, lines 46-52 and col. 9, lines 66-col. 10, lines 1-4, which indicates an equalizer band comprising at least digital two filter.

Thus, it would have been obvious to one of the ordinary skill in the art at time the invention was made to modify the invention of Tran combination by implementing an equalizer

comprising a plurality of filters on a band for the purpose of providing a natural sound to the listener and preventing distortion as taught by Yajima.

Regarding **claim 2**, Tran combination and Yajima (herein, Tran combination et al) disclose everything claimed as applied above (see claim 1). Tran combination et al. (Hildebrand) further discloses support of the operator or use providing filter/equalizer parameters and calculating a set of filter coefficients base on the parameter input by the operator/user (col. 10, lines 57-67 and col. 11, lines 1-33) – Hildrebrand.

Regarding **claim 4**, Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically determine a type of a speaker of the computer. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the

speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band with each band including at least two filters, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband equalization (figures 1 and 6) including a plurality of bands (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer, which reads on a parametric equalizer, including frequency and cut/boost parameters being independently controlled, therein, which provides obvious support of realizing and 1^{st}, 2^{nd} , and 3^{rd} equalizer band, respectively with a cut/boost parameter.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer

with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

However, Tran and Hildebrand and Maag (herein, Tran combination) fail to disclose each equalizer band comprising at least two filters. In a similar field of endeavor, Yajima et al. (herein, Yajima) disclose an audio system comprising a signal with a compensation filter, wherein the compensation includes a plurality of digital filters, wherein this may be used to implement an equalizer (figure 2 – reference 11)- col. 4, lines 46-52 and col. 9, lines 66-col. 10, lines 1-4, which indicates an equalizer band comprising at least digital two filter.

Thus, it would have been obvious to one of the ordinary skill in the art at time the invention was made to modify the invention of Tran combination by implementing an equalizer comprising a plurality of filters on a band for the purpose of providing a natural sound to the listener and preventing distortion as taught by Yajima.

Regarding claim 8, Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (USB type, as evident by the use of the Universal Serial Bus) - (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically determine a 1st type of a speaker of the computer, and of a 2nd type. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the a set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system.

Further, it would have been obvious to one of the ordinary skill at the time the invention was made to modify to implement an additional step of determining a second set of filter coefficient is a different or second type of speaker is determined for the calibrating or

compensating the audio system's operating characteristics for the different speaker to ensure adequate performance by the speaker.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band with each band including at least two filters, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband equalization (figures 1 and 6) including a plurality of bands (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer, which reads on a parametric equalizer, therein.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

However, Tran and Hildebrand and Maag (herein, Tran combination) fail to disclose each equalizer band comprising at least two filters. In a similar field of endeavor, Yajima et al. (herein, Yajima) disclose an audio system comprising a signal with a compensation filter, wherein the compensation includes a plurality of digital filters, wherein this may be used to implement an equalizer (figure 2 – reference 11)- col. 4, lines 46-52 and col. 9, lines 66-col. 10, lines 1-4, which indicates an equalizer band comprising at least digital two filter.

Thus, it would have been obvious to one of the ordinary skill in the art at time the invention was made to modify the invention of Tran combination by implementing an equalizer comprising a plurality of filters on a band for the purpose of providing a natural sound to the listener and preventing distortion as taught by Yajima.

Further, Hildebrand further discloses support of the operator or use providing filter/equalizer parameters and calculating a set of filter coefficients base on the parameter input by the operator/user (col. 10, lines 57-67 and col. 11, lines 1-33) – Hildrebrand.

Regarding claim 10, Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (USB type, as evident by the use of the Universal Serial Bus) - (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically determine a 1st type of a speaker of the computer, and of a 2nd type. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the

speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter. Further, Hildebrand further discloses support of the operator or use providing filter/equalizer parameters and calculating a set of filter coefficients base on the parameter input by the operator/user (col. 10, lines 57-67 and col. 11, lines 1-33).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system. Further, it would have been obvious to one of the ordinary skill at the time the invention was made to modify to implement an additional step of determining a second set of filter coefficient is a different or second type of speaker is determined for the calibrating or compensating the audio system's operating characteristics for the different speaker to ensure adequate performance by the speaker.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band with each band including one or more filters, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband

equalization (figures 1 and 6) including a plurality of bands with comprising one digital filter (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer which includes three parameters of equalization, which reads on a parametric equalizer, therein.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

Regarding **claims 13, 19 and 20,** Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (USB type, as evident by the use of the Universal Serial Bus) - (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically determine a 1st type of a speaker of the computer, and of a 2nd type. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the a set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and

outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband equalization (figures 1 and 6) including a plurality of bands comprising one digital filter (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer which includes three parameters of equalization and cut/boost characteristic, which reads on a parametric equalizer, therein.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

Regarding **claim 14**, Tran combination and Yajima (herein, Tran combination et al) disclose everything claimed as applied above (see claim 13). Tran combination et al. (Hildebrand) further discloses support of the operator or use providing filter/equalizer parameters and calculating a set of filter coefficients base on the parameter input by the operator/user (col. 10, lines 57-67 and col. 11, lines 1-33) – Hildrebrand, wherein Hilderbrand's teaches of generating filter coefficients based upon the various audio components indicates calculating coefficients without regard to the type of speaker..

Regarding **claim 15**, Tran discloses a multimedia speaker detection circuit comprising a memory (ROM) for storing instructions for enabling a computer to determine the type speaker (USB type, as evident by the use of the Universal Serial Bus) - (20) connected within the unit, and applying the appropriate equalization thereto (col. 4, lines 19-67, col. 5, lines 1-8, 41-45, and 49-51), which indicates a 1st set of instruction to automatically determine a 1st type of a speaker of the computer, and of a 2nd type. However, Tran fails to specifically disclose sets of instruction for selecting a set of filter coefficients for a digital filter, realizing a parametric equalizer, therein.

Regarding the a set of filter coefficients, and parametric equalizer, in a similar field of endeavor, Hildebrand discloses a method and apparatus for digital filtering of audio signals. Hildebrand's disclosure comprises a computer program in a Program ROM for computing a

digital filter of a digital equalizer, wherein the filter is generated based on the type of audio reproduction device and components that are need for adequate function of the device, and outputs a signal to a speaker or speaker system, wherein the device may be a multimedia computer with an accompanying speaker or speaker system which depends on the type of connectors and wiring being used to for proper installation and audio broadcasting via the speaker system (col. 7, lines 40-67 and col. 8, lines 1-11, 60-67, col. 9, lines 1-24 and col. 11, lines 1-9, and figures 2-6), which constitutes as instructions for selecting and/or generating a set of filter coefficients based on the speaker type, and providing a digital equalizer, which is parallel to a parametric equalizer with a digital filter. And, Hildebrand further discloses support of the operator or use providing filter/equalizer parameters and calculating a set of filter coefficients base on the parameter input by the operator/user (col. 10, lines 57-67 and col. 11, lines 1-33) – Hildrebrand, wherein Hilderbrand's teaching of generating filter coefficients based upon the various audio components indicates calculating coefficients without regard to the type of speaker.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran by implement computer program with instructions of generating a digital filter of a digital equalizer and thus providing a parametric equalizer for the purpose of enabling a computer to provide sufficient loudspeaker compensation to the various types of speakers that may be used by a computer to improve the sound quality of the audio system.

Tran and Hildebrand (Hildebrand) disclose the equalizer may comprise one or more filters (digital filters), however, Tran and Hildebrand fail to specifically disclose the parametric equalizer comprising a plurality of equalizer bands, therein.

Regarding the equalizer having a plurality of equalizer band, in a similar field of endeavor, Maag et al. (herein, Maag) discloses multiband equalization (figures 1 and 6) including a plurality of bands comprising one digital filter (col. 3, lines 67- col. 4, lines 1-5 and lines 33-50), and col. 2, line 19-22 provide specific components and characteristics of a parametric equalizer which includes three parameters of equalization and cut/boost characteristic, which reads on a parametric equalizer, therein.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Tran and Hildebrand by implement a parametric equalizer with multi-band equalization for the purpose of optimizing the overall frequency response characteristics of an audio system to enabling creating a reproduced as accurately as possible to the originally created sound as taught by Maag.

Allowable Subject Matter

6. Claims 5-7 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 11-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claim 9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claim 3 is allowed.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 3, the prior art of record is drawn to a computer via software application/program determining the type of speaker/loudspeaker being used by the computer, determining the corresponding filter coefficients for a plurality of digital filters, realizing a parametric equalizer using the digital filters, wherein the parametric equalizer comprises a plurality of equalizer bands with each band having one or more filters and the prior art of record further provides support of user input of the equalizer parameters. However, the prior art of record fails to specifically disclose providing for the value of the cut/boost parameter of the equalizer meeting predefined mathematical criteria.

Response to Arguments

Applicant's arguments with respect to claims 1-2, 4-8, and 10-20 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argued specifically that the Hildebrand reference only disclosed generating coefficients for only one digital filter, however, in respect to the specific teachings of Hildebrand implementing a program for providing for more than one set of filter coefficients would have been obvious to one of the ordinary skill in the art particularly if there is existing support of

using more than one filter in an equalizer as provided the new references of prior art Maag et al and Yajima et al. The Gambacurta reference has been removed from the rejection. Thus, in respect to further search and consideration of the pending claims (amended and previously presented) are not patentable over the prior art. Prior art references Maag et al. and Yajima et al. have been provided with the teachings of Tran and Hildebrand for an art rejection. Maag et al. specifically discloses an equalzier with multiple bands comprising digital filters and provide precise characteristics of a parametric equalzer, and Yajima provides support of a plurality of digital filter being used on a band or signal, wherein an equalizer can be implemented. The examiner thanks the attorney, via telephone for the various conversations and clarifying the intended meaning of "a type of USB loudspeaker".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (571) 272-7518. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura A. Grier
April 18, 2005